

**What Is Claimed Is:**

1           1.    A system for optical storage device speed error  
2 compensation, comprising:  
3           a circuit for receiving an speed error signal and outputting  
4           a first tracking control effort signal;  
5           a feedforward controller for receiving the speed error  
6           signal and generating a second tracking control effort  
7           signal according to a DC steady state error in the  
8           speed error signal;  
9           an optical head module for moving at an actual speed  
10           determined by the total of the first tracking control  
11           effort signal and the second tracking control effort  
12           signal;  
13           a gain controller for generating a feedback speed signal  
14           according to the actual speed of the optical head  
15           module; and  
16           a comparison device subtracting the feedback speed signal  
17           from a predetermined speed signal to generate the  
18           speed error signal.

1           2.    The system as claimed in claim 1, wherein the circuit  
2 comprises a microprocessor generating a calculated result  
3 according to the speed error signal, and a feedback controller  
4 receiving the calculated result and outputs the first tracking  
5 control effort signal.

1           3.    The system as claimed in claim 1, wherein the  
2 feedforward controller continuously generates the second  
3 tracking control effort signal to adjust the DC steady state error  
4 to a normal value.

1           4.    The system as claimed in claim 1, wherein the  
2    feedforward controller and the feedback controller are  
3    implemented by using a firmware programming a control chip.

1           5.    The system as claimed in claim 1, wherein the optical  
2    head module is inclined orientation.

1           6.    The system as claimed in claim 1, wherein a measurement  
2    device detects the actual speed and outputs the actual speed  
3    signal to the gain controller.

1           7.    The system as claimed in claim 1, wherein the first  
2    tracking control effort signal and the second speed control  
3    signal are voltage signals.

1           8.    A method for speed error compensation, comprising the  
2    steps of:  
3        detecting an actual speed of an optical head module and  
4        outputting an actual speed signal;  
5        obtaining a feedback speed signal by gaining the actual  
6        speed signal;  
7        generating a speed error signal by subtracting the feedback  
8        speed signal from a predetermined speed signal;  
9        calculating the speed error signal and outputting a first  
10       tracking control effort signal;  
11       calculating a DC steady state error in the speed error signal  
12       and outputting a second tracking control effort  
13       signal; and  
14       adjusting the actual speed of the optical head module  
15       according to the total of the first tracking control

16           effort signal and the second tracking control effort  
17           signal;  
18       wherein the second tracking control effort signal is  
19           continuously generated until the DC steady state error  
20           reaches a normal value.

1       9.    The method as claimed in claim 8, wherein when the speed  
2   error signal is positive and the DC steady state error exceeds  
3   the normal value, the total of the first tracking control effort  
4   signal and the second tracking control effort signal increases  
5   the actual speed of the optical head module.

1       10.   The method as claimed in claim 8, wherein when the speed  
2   error signal is positive and the DC steady state error is lower  
3   than the normal value, the total of the first tracking control  
4   effort signal and the second tracking control effort signal  
5   decreases the actual speed of the optical head module.

1       11.   The method as claimed in claim 8, wherein when the speed  
2   error signal is negative and the DC steady state error exceeds  
3   the normal value, the total of the first tracking control effort  
4   signal and the second tracking control effort signal decreases  
5   the actual speed of the optical head module.

1       12.   The method as claimed in claim 8, wherein when the speed  
2   error signal is negative and the DC steady state error is lower  
3   than the normal value, the total of the first tracking control  
4   effort signal and the second tracking control effort signal  
5   increases the actual speed of the optical head module.